SEMESTER EXAMINATION DECEMBER-2023

Course Name: - B.TECH **Semester:- III**

Paper Name: - Soft Computing **Paper Code:- TCS-301**

Time - 3 Hrs + 20 minutes per hour extra time for V.I. & examinees with writer. **Max Marks-70**

समय– 3 घण्टे + 20 मिनट प्रति घंटे अतिरिक्त–दृष्टिबाधित एवं सह लेखक परीक्षार्थियों के लिए। अधिकतम अंक–70

Instructions:

- The question paper consists of three sections namely A, B, C. All sections are compulsory.
- Section A- Each question carries **3 mark. All questions are compulsory.**
- Section B- Answer any **5 out of 7** given questions in maximum one hundred fifty (150) words. Each question carries **7 marks.**
- Section C- Answer any **2 out of 3** given questions in maximum three hundred (300) words. Each question carries **10 marks.**

निर्देश:

- प्रश्न पत्र में तीन खण्ड अ, ब, व स हैं। सभी खण्ड अनिवार्य हैं।
- खण्ड–अ में प्रत्येक प्रश्न **तीन अंक** का है। **सभी प्रश्न अनिवार्य हैं।**
- खण्ड–ब में **सात प्रश्नों में से किन्हीं पाँच** प्रश्नों के उत्तर अधिकतम 150 शब्दों में दें। प्रत्येक प्रश्न **सात अंक** का है।
- खण्ड–स में **तीन प्रश्नों में से किन्हीं दो** प्रश्नों के उत्तर अधिकतम (250-300) शब्दों में दें। प्रत्येक प्रश्न **10 अंक** का है।

Section – A (खण्ड–अ)

Objective Questions (वस्तुनिष्ठ प्रश्न)

1. Answer all the following questions. **5x3 =15**

1. Which of the following is associated with fuzzy logic?
   (a). Crisp set logic
   (b). Many-valued logic
   (c). Two-valued logic
   (d). Binary set logic?

2. _____ represents the fuzzy logic
   (a). IF-THEN rules
   (b). IF-THEN-ELSE rules
   (c). Both a & b
   (d). None of the above

3. A perceptron can be defined as _____
   (a). A double layer auto-associative neural network
   (b). A neural network with feedback
   (c). An auto-associative neural network
   (d). A single layer feed-forward neural network with pre-processing

4. Which of the following is correct for the neural network?
   I. The training time is dependent on the size of the network
   II. Neural networks can be simulated on the conventional computers
   III. Artificial neurons are identical in operation to a biological one
   (a). All of the above
   (b). (ii) is true
   (c). (i) and (ii) are true
   (d). None of the above

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5. Backpropagation can be defined as _____

(a). It is another name given to the curvy function in the perceptron.
(b). It is the transmission of errors back through the network to adjust the inputs.
(c). It is the transmission of error back through the network to allow weights to be adjusted so that the network can learn.
(d). None of the above

Section – B (खण्ड–ब)
Short Answer Questions (लघुउत्तरीय प्रश्न)

2. Answer any five of the following questions in maximum 150 words. **5x7=35**
निम्नलिखित में से किन्हीं पाँच प्रश्नों के उत्तर अधिकतम 150 शब्दों में दें।

(i). Write short notes on Recurrent networs?

(ii). What do you mean by back propagation .?

(iii). What are fuzzy set operation ?

(iv). Explain Fuzzy to crisp conversion logic?

(v). Explain Types of machine learning .

(vi). Explain difference between hard computing and soft computing .

(vii). Explain fuzzy controller

Section – C (खण्ड–स)
Descriptive Questions (विवरणात्मक प्रश्न)

3. Answer any two of the following question in maximum 300 words. **2x10=20**
निम्नलिखित में से किन्हीं दो प्रश्नों के उत्तर अधिकतम 300 शब्दों में दें।

(i) Explain Genetic operators .?

(ii) Explain Auto associative and hetro associative memory?

(iii) Explain architecture of perceptron model?

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